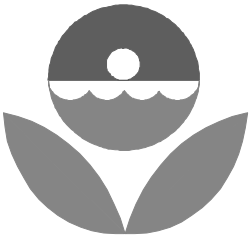

United States
Environmental Protection Agency
Region IX

Record of Decision

for

Dual Site
Groundwater Operable Unit

Montrose Chemical and Del Amo Superfund Sites

Volume II:
Response Summary

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Record of Decision: Dual Site Groundwater Operable Unit
Montrose Chemical and Del Amo Superfund Sites

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Acronyms

AOC	Administrative Order on Consent
ARARs	applicable or relevant and appropriate requirements
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	below ground surface
BHC	benzene hexachloride
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Act Information System
C.F.R.	Code of Federal Regulations
CIC	community involvement coordinator
CPA	Central Process Area of the former Montrose Plant
CPF	cancer potency factor
DCA	dichloroethane
**See below*	
DCE	dichloroethylene
DDT	dichlorodiphenyl-trichloroethane
DNAPL	dense nonaqueous phase liquid
Dow	Dow Chemical Corporation
DTSC	California Department of Toxic Substances Control
FBR	Fluidized Bed Reactor
FSP	field sampling plan
FTC	focused transport calibration
gpm	gallons per minute
GSA	United States General Services Administration
ISGS	in-situ groundwater standards
JGWFS	Joint Groundwater Feasibility Study
JGWRA	Joint Groundwater Risk Assessment
LBF	Lower Bellflower Aquitard
LGAC	liquid-phase granular activated carbon
LNAPL	light nonaqueous phase liquid
MBFB Sand	Middle Bellflower "B" Sand
MBFC Sand	Middle Bellflower "C" Sand
MBFM	Middle Bellflower Muds
MCL	maximum contaminant level (promulgated drinking water standard)
µg/L	micrograms per liter
mg/kg/day	milligrams per kilogram per day
mg/L	milligrams per liter
NAPL	nonaqueous phase liquid

NCEA	National Center for Exposure Assessment
NCP	National Contingency Plan
NOEL	No Observed Adverse Effect Level
NRRB	National Remedy Review Board
O&M	operations & maintenance
OSHA	Occupational Safety and Health Administration
pCBSA	para-chlorobenzene sulfonic acid
PCE	perchloroethylene
ppb	parts per billion
PRG	Preliminary Risk Goal
PRP	potentially responsible party
QAPP	Quality Assurance Project Plan
RCRA	Resource, Conservation and Recovery Act
RfD	reference dose
RI	Remedial Investigation
RI/FS	Remedial Investigation and Feasibility Study
RME	reasonable maximum exposure
RMS	root mean square
ROD	Record of Decision
ROST™	Rapid Optical Screening Tool
RPM	remedial project manager
Shell	Shell Oil Company
SVE	soil vapor extraction
TBC	To-Be-Considered Criterion
TCA	trichloroethane
TCE	trichloroethylene
TDS	total dissolved solids
TI	technical impracticability
UBF	Upper Bellflower
U.S.C.	United States Code
VOCs	volatile organic compounds

*Note: The term “Del Amo Respondents” refers to Shell Oil Company and Dow Chemical Company, collectively.

III. Response Summary

The purpose of the Response Summary is to provide a summary of EPA's response to the comments EPA received from the public on EPA's proposed plan and administrative record for the Dual-Site Groundwater Operable Unit, Montrose Chemical and Del Amo Superfund Sites, Los Angeles, California. This comment period was announced on June 26, 1998 and began July 2, 1998. The comment period was originally scheduled to end on July 31, 1998, a duration of 30 days. However, in response to a request from the public, the comment period was extended by EPA for all commenters to August 30, 1998, a duration of 60 days. Because August 30 was a Sunday, EPA did consider comments received on August 31, 1998. EPA held a formal public meeting on Saturday, July 25, 1998 from 1:00 PM to 5:00 PM at the Torrance Holiday Inn. The meeting was divided into two parts. In the first part, EPA explained its proposed remedial action and answered questions. In the second part of the meeting, EPA received formal public comments to be addressed in this response summary. The entire proceedings of the meeting were transcribed by court reporter and are being included in the final administrative record.

EPA received two kinds of comments: 1) written comments received during the public comment period, and 2) formal oral comments received at EPA's public meeting. EPA is required by law to consider and address only those comments that are pertinent and significant to the remedial action being selected. EPA is not required to address comments which pertain to the allocation of liability for the remedial action, nor potential enforcement actions to implement the remedial action, as these are independent of the selection of the remedial action and EPA's proposed plan. EPA does have the discretion to address comments with limited pertinence if doing so would nonetheless address the concerns of a significant segment of the public.

EPA is not required to re-print the comments of the commenters verbatim and may paraphrase where appropriate. In many cases in this response summary, EPA has included large segments of the original comments. However, persons wishing to see the full text of all comments should refer to the commenter's submittal to EPA which has been included in the administrative record.

Specific responses by EPA are indexed for convenient reference. These indices run consecutively through the entire Response Summary, regardless of the section or commenter. Index numbers are listed after the symbol ✍. Comments are shown in normal text, and EPA's responses are shown in **shaded boxes in boldface text.** In some cases, a certain portion of the commenter's text is boldfaced in order to highlight the portion of the commenter's text being addressed

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1. Responses to Oral Comments Received During The Public Meeting

As required by law, EPA held a formal public meeting on its proposed plan for this remedy on Saturday, July 25, 1998, from 1:00 PM to 5:00 PM at the Torrance Holiday Inn on Vermont Street. During this meeting, EPA gave a presentation explaining its proposal during which it answered questions, followed by a question-and-answer period, and concluded with a period in which formal comments were received into the record. The entire meeting was recorded by a court-recorder, and the transcript of the meeting, including all of EPA's and the community's statements, and EPA's responses to the community, are reflected in the transcript. The transcript is entered into the Administrative Record for this remedy with the Record of Decision.

EPA here provides responses to the comments made by the community in the public meeting during the formal comment portion of the meeting. It should be noted that during this portion of the meeting, some persons raised additional questions to EPA and requested a direct oral response, which EPA provided. Only those statements formally identified by persons as formal comments for the record are addressed here. EPA's oral responses to questions raised during this and other periods of the meeting can be found in the meeting transcript.

Comment:

...my name is Clare Adams. I'm a resident, homeowner...there has been nothing said by the EPA that this area is dangerous to occupy for business purposes. It wasn't what I planned to talk about, but I want that to be clearly stated: This is safe. We can come here to the hotel, to businesses. And none of the research that the EPA has published or anybody has asserted has said that any of this area from Del Amo to 190th Street), from Normandie to the freeway, is not safe for businesses such as take place here now.

✍1 EPA Response:

EPA provides a response to this issue in another response. See EPA's response to the written comments from Clare F. Adams. EPA does note with respect to this particular comment that the commenter is correct that there is no evidence nor plausible reason to believe that Superfund contaminants affect the hotel at which the public meeting was held, despite its being within the Del Amo Site, and EPA considers attendance at that meeting to have been completely safe.

Comment [Cynthia Babich, director, Del Amo Action Committee]:

[Is it true that] there is no health-based level for toxicity been determined yet [for pCBSA]? So it could be potentially worse than some of the other chemicals that we're talking about today, the benzene and the monochlorobenzene? And you said a little earlier that when you were talking about cleaning up all those other chemicals while you were doing the benzene and monochlorobenzene, that it would take care of all of those except for this particular chemical. I would like to know what kind of work the EPA is planning to do to pressure other agencies, such as the ATSDR, Agency for Toxic Substances and Disease Registry, to come up with some kind of a guideline for you guys as you go through that. We'd hate to have you come up and do all this cleanup for one thing and find out it's a dioxin situation and it's something that would be much worse.

✍2 EPA Response:

It is true that no health-based toxicity level has been established for pCBSA. Not only is there no formal standard (such as a drinking water standard), there are no accepted values that would allow EPA to quantify the toxicity of pCBSA. Based on what we do know, EPA's remedy is protective of human health. We note that no one is drinking water today that is contaminated with pCBSA, and EPA's remedy will be monitoring for pCBSA to ensure that this remains true. We could find aspects of toxicity for pCBSA in the future of which we are not aware today.

This does not mean that we have no information about pCBSA. A few studies have been done. Several of these were screening indicator tests which did not show mutagenicity (tendency to cause mutations) or teratogenicity (tendency to cause birth defects). Another acute (short-term) study did not cause health effects when very high dosages of pCBSA were used. We also know that pCBSA is highly water soluble, and one study suggested that the body may convert certain compounds into pCBSA in order to excrete them. These characteristics, taken alone, would suggest 1) a low acute (short-term) toxicity for pCBSA, and 2) the time that pCBSA stays in the body, if it is ingested, may be short. Because of these factors, it is unlikely, though admittedly not impossible, that pCBSA has a higher human toxicity than do chlorobenzene and benzene. Benzene, for instance, is one of only a handful of compounds that is proven to be a carcinogen not only through animal studies but directly in humans.

The problems are that (1) the design of these studies was inadequate to establish toxicity values, (2) an insufficient number of studies has been performed, and (3) no chronic (long-term) studies have been performed. This means that the data on pCBSA must be considered preliminary and that no direct quantification of its toxicity is supportable by the existing data at this time.

The priorities for performing toxicological studies on chemicals are influenced by a wide variety of persons and institutions, and are not completely within the control of the EPA or agencies such as ATSDR. EPA is sending a memorandum to those persons within EPA who have such influence and who discuss priorities with other agencies and institutions, informing them of the pCBSA situation at the Montrose Chemical Site. Readers should understand that there are far more chemicals awaiting study than can be studied at any given time, and so studies are usually done first on chemicals to which people are already being exposed, or for which the indicator tests show immediate signs of toxicity. Because pCBSA meets neither condition currently, it is not likely to be studied as soon as many other chemicals. On the other hand, its presence in the groundwater over a large area at the Montrose and Del Amo Sites does give it a certain degree of priority. Presently, no studies are planned or underway on the toxic effects of pCBSA. Such studies typically take on the order of 1-4 years to complete, once started.

EPA will review the remedy as necessary to address any new knowledge about pCBSA.

Comment [Cynthia Babich, Director, Del Amo Action Committee]:

We can clearly see from your presentation that the groundwater contamination extends into the residential areas of the community. Soil gas is a concern...I think that when we start trying to separate some of the issues aside from the groundwater, there's confusion that if you clean up this one little thing, that everything's going to be pristine again and we can go about our way. That's not what's going on in these communities...there's a lot of different things affecting it...people have a right to know.

✍3 EPA Response:

EPA does not intend to imply that if its cleanup for groundwater is implemented, then all issues with respect to contamination at these sites are resolved. That is why EPA is continuing with its investigations and studies, and, as necessary, will select additional cleanup actions for other areas, including but not limited to soils. In addition, EPA acknowledges that there may be issues not involving the Superfund sites but related to possible exposures to chemicals from other sources which the community may face.

Part of the comment refers to the concept of "offgassing" from the groundwater. In concept, this can occur when contaminants leave the groundwater and move up through soils a limited distance as a vapor. As explained in the meeting, EPA does not believe that persons in residences are exposed to soil gas contamination that has come off the water table for several reasons:

1) The vast majority of the groundwater contamination that is under residences is not in the water table aquifer (layer), but in the aquifers below it. In these areas, the water table is clean. To understand this, one can picture clean water layers near the surface lying over contaminated layers deeper down. In order for contamination to offgas into the soils above the water table, the water table must be contaminated. Because the water table under virtually all the residences is clean, there are no contaminants to offgas into the soils above the water table at these locations.

2) Even in the very limited areas where contamination exists in the water table under residences, the water table is more than 50 feet under the ground, and the effects of significant offgassing typically do not extend more than 10-15 feet. This is especially true in this case, because benzene has been shown to readily biodegrade in the soils above the water table over time; this greatly impedes the movement of offgassed vapors toward the ground surface, and

3) Soil gas samples taken in soils in residential yards directly over the groundwater contamination nearest the Del Amo waste pits did not indicate the presence of offgassed contaminants.

Comment:

My name is John Carpenter, and I'm a resident of Carson. You seem to see where a 50-year timetable is being brought up for remediation of this site, and my only question is, what is EPA's commitment or the involved parties' commitment going to be if there are any technological changes which would allow different processes of different remediation technologies to be used?

✍4 EPA Response:

This comment was addressed in response to another set of comments. See response to written comment of John Carpenter, in this response summary. EPA also responded to this comment orally during the public meeting at the request of the commenter.

Comment:

Ms. Bassist suggested that with EPA's toll-free number, we publish a menu of the steps that you can take to get through to the people quickly if its during working hours, and also the extensions of people working on the project.

✍5 EPA Response:

EPA will take this comment under advisement and see what we can do. We note that EPA does have an automated locator at 415-744-1305, which will allow you to spell a person's name on your phone and it will connect you without having to know the person's phone number. We note that this is a toll call, however. Please also note that, if persons are away from their desk, you will reach their voice mail, but EPA staff is generally diligent about returning phone calls. For reference, the persons working on the project can be reached at the following numbers:

Jeff Dhont, Remedial Project Manager 415-744-2399

Dante Rodriguez, Remedial Project Manager 415-744-2239

Bruni Davila, Remedial Project Manager 415-744-2364

Michael Montgomery, Chief, Arizona/California Site Cleanup Section 415-744-2362

Andrew Bain, Community Involvement Coordinator 415-744-2186

Comment:

Chris Stoker, who identified himself as a concerned citizen, asked several questions about how contamination could be found upgradient of the NAPL sources, or cross-gradient of the NAPL sources, and wanted EPA's input as to how it might occur.

✍6 EPA Response:

First, EPA must stress that the graphics used in the public meeting were primarily for conceptual purposes, and the notion of up- or cross-gradient spreading of NAPL or dissolved phase plumes is quite technical and beyond the general scope being conveyed in the meeting. Therefore, the conceptual figures were not designed to be read with the kind of precision that the commenter may have supposed. If interpreted in this way, the figures may over-represent the degree to which NAPL has moved "upgradient" of the source. Instead, the commenter should refer to the remedial investigation and feasibility study reports and to other documents in the administrative record documenting NAPL investigations for more precise descriptions of the position of NAPL.

It is not clear whether the commenter was primarily interested in the movement of NAPL in an "up-" or "cross-gradient" direction, or the movement of the dissolved plume in these directions. EPA will give a brief response to both.

It is true that the NAPL at the Montrose Chemical Site has been found in a distribution that extends both north and south of the Central Process Area to some extent. However, the movement of DNAPL in the subsurface is not strongly influenced by hydraulic gradients in many instances. Much more important are the NAPL residual saturations and head distributions, as well as the highly local variations in the hydrostratigraphic environment (such as porosity, residual conductivity, composition and character of the stratigraphic material, and alignment of stratigraphy). These local factors, and general dispersion, will cause the NAPL to spread out to some degree laterally as it "fingers" and moves downward.

At the Del Amo Site, the NAPL likely originally floated on the water table (LNAPL). Again, hydraulic gradients would not necessarily be the prevailing factor in the movement of the material on the water table, the local pressure distribution of the NAPL arriving at the water table, as well as the factors already discussed above for DNAPL being more predominant.

Dissolved plumes also typically extend upgradient and side-gradient of the source. Factors which may have influenced this movement at the Montrose and Del Amo Sites include dispersion and diffusion, and also variations in the groundwater flow gradient in the past.